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To Whom It May Concern:

We are very appreciative of all of your hard work consolidating and publishing the CSI-Thermal handbook. We also appreciate the opportunity to submit comments and receive industry feedback. Here are our comments with regards to the handbook published May 24th:

- Open-Loop systems should be allowable in the program with appropriate freeze protection capabilities. If designed properly, commercial open loop solar water heating systems can provide the most solar heat in the most cost effective way. Freeze protection capabilities should be approved by the PAs. Automatic valves operating on relays controlled by controllers should be allowed only if there is no risk of power loss to the controller.
- 50/50 true-up method should be adjusted. We understand the reasoning behind the split of the incentives for large systems, however we believe this will hinder commercial solar thermal market growth. With the current state of the economy, many companies that may elect to install a commercial solar thermal system will not have much room in their capital budget. Therefore, if upfront incentives are now reduced this drastically it will greatly slow adoption of this technology in the commercial market.
 - For example, let's take a \$100,000 system can displace roughly 4,000 therms per year. On those 4,000 therms the CSI-Thermal rebate would be \$51,280, which is more than 50% of the project costs. By using the 50/50 true up method it will increase the upfront costs to the end user by \$25,640 for this system.
 - Our company is prepared to carry the costs of the rebate amount for the end user if paid as one upfront lump sum, however we will have trouble carrying the costs of the rebate if only 50% is paid upfront. Preferably, the split could be adjusted to a 75/25 split or have the held back incentive amount be paid monthly instead of at the end of the year (based on actual metered performance).

- Another suggestion we have is to keep the incentive as an upfront payment and require metering data to be provided to the PAs monthly and compared to performance and incentive calculations. If the actual performance after the first year is less than calculated, then the end user will have to reimburse that proportionate part of their rebate. If the actual performance after the first year is more than calculated, the CPUC will not owe any additional incentive amount. This obligation could even go to the contractor, making them financially responsible for an underperforming system, which will ensure correct sizing, design and installation.
- This split will also cause confusion with the US Treasury Grant, which is also issued as an upfront lump sum after the system is installed. How much of the system costs will be reduced by the rebate for determining the grant amount if it will be split as currently described in the handbook? Although we understand this is not a CPUC issue, we do want to point out that it will cause confusion in the industry and for the end users.
- Advanced metering system requirements should be adjusted. We also understand the need for accurate, proven and tested metering systems, although we believe that the specifications for the metering should be adjusted. There is only a few US companies who make a btu meter kit with a flow meter up to the specifications in the handbook, one of which being Onicon which we understand has been used by PG&E for years. An Onicon btu meter kit with a flow meter for a 2" pipe (most common cold pipe size for average size commercial system) costs upwards of \$4,000. Using the same example of a \$100,000 system that displaces 4,000 therms annually, the metering system would be 4% of the total project costs. Using a 16 collector system, the minimum size for "large scale" systems, which would cost about \$50,000 and displace about 1,600 therms annually, the meter would be 8% of the total project costs. We feel that these advanced lab-grade meters are not necessary for the program and would encourage allowances of up to +/- 2% accuracy on the flow meter. This will allow for a lot more competitors to enter the market and drastically reduce metering costs as part of the total project costs.

Again, we appreciate the opportunity to submit our comments and we hope they are taken into consideration when publishing the final handbook later this month.

Best regards,

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